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## Ovarian inguinal hernia

Saika Amreen<sup>1</sup>, Yawar Yaseen<sup>2</sup>

<sup>1</sup> Department of Radiodiagnosis, Sher-I-Kashmir Institute of Medical Sciences, Soura, India

<sup>2</sup> Medical Officer, Directorate of Health Services, Kashmir, India

Correspondence: Dr Saika Amreen, MD, Senior Resident, Department of Radiodiagnosis & Imaging, SKIMS, Soura; tel.: +919596257011, e-mail: saikaamreen@gmail.com

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### Abstract

Indirect inguinal hernia is a common congenital abnormality in children. In female infants, herniation of the ovaries, fallopian tubes and uterus has been reported. Herniation of the ovaries is a rare congenital condition that may be complicated by strangulation, torsion, and infertility. A 6-week-old female infant presented with visible swelling in the right inguinal region. This case highlights the utility of ultrasonography as a cheap and easily available imaging technique that can be used for the characterization of the hernial contents, and guide the management, further accentuated by the use of color Doppler imaging, of this subtle but crucial entity.

## Introduction

Inguinal masses are a common finding among infants; their etiologies range from benign to potentially life threatening<sup>(1)</sup>. However, inguinal herniation of the ovary or uterus presenting as a labia majora mass is a rare congenital condition that may be complicated by strangulation, torsion, and infertility<sup>(2)</sup>.

We present a case of indirect inguinal hernia in a 6-week-old female infant with prolapse of an ovary. The case is reported in order to alert sonographers to its appearance and presentation.

## Case report

A 6-week-old female infant, full-term gestation, first in birth order, born of non-consanguineous parents, presented with visible swelling in the right inguinal region, which was first noticed -by the parents. The swelling was non-reducible and non-pulsatile. No increase was noted in the size of the swelling while the infant was crying. There were no associated bowel or bladder signs. No features of strangulation were noted. The skin over the swelling was normal both in color and temperature.

High-resolution ultrasound (using a 10 MHz linear transducer) of the swelling revealed an 8 mm defect in the

anterior parietal wall with herniation of the right ovary into the described swelling. The defect contained a soft tissue structure, likely the ligament. The ovary had multiple 3–6 mm follicles and measured approx. 3cc in volume. Color Doppler evaluation of the ovary revealed healthy vascularity. The uterus was slightly displaced to the right side of the abdomen. The left ovary was visualized as normal both in morphology and location. The diagnosis of right inguinal hernia containing the right ovary, without evidence of ovarian torsion, was made.

Open herniotomy was performed on the next day. Exploration of the inguinal canal revealed a small hernia sac which contained the ovary. The ovary appeared healthy, with no features of torsion. The ovary was pushed back into the peritoneal cavity, and the hernia sac was ligated. The post-operative period was uneventful.

## Discussion

Inguinal hernias are the most common cause of inguinal masses in infants, with an estimated incidence of 0.8–4.4%<sup>(1)</sup>. A sliding inguinal hernia in females contains the ovary with or without the fallopian tube in 15% to 20% of cases<sup>(3)</sup>. There are multiple differentials of labial masses in infants, including herniated intestine, fat, fluid, lymph nodes, a congenital labial cyst, leiomyoma, abscess, hematomas, lipomas, or lymphangiomas<sup>(2)</sup>.

The development of the gubernaculum occurs between 8 and 12 weeks of intrauterine life. It attaches to the uterus at the cornual level, over which it forms the ovarian ligament. Its caudal part forms the round ligament<sup>(4)</sup>. A small evagination of the parietal peritoneum, called the canal of Nuck, accompanies the round ligament through the inguinal canal to the labium majorum<sup>(3)</sup>. The canal of Nuck obliterates shortly before birth, however its persistence allows herniation of the visceral contents into the canal<sup>(4)</sup>.

Since the clinical presentation is non-specific, high-resolution ultrasonography is an optimum diagnostic tool for the correct diagnosis of the herniated contents<sup>(2)</sup>. It provides an excellent spatial resolution, and helps in the characterization of contents<sup>(3)</sup>. The morphological characters of the ovary are unusual on ultrasound, hence identification helps guide further management. In addition, transabdominal sonography can reveal the absence of an ovary on one side, as it did in our case, with displacement of the uterus.

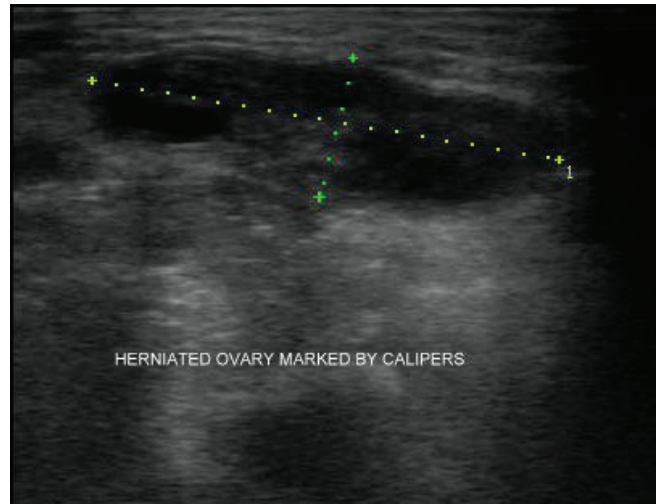
Hernias with ovarian content are much less likely to regress spontaneously than simple inguinal hernias, and carry a greater risk of incarceration, as the ovary is quite large compared to the narrow vascular pedicle<sup>(1)</sup>. Although grayscale findings of an enlarged, heterogenous ovary with multiple peripheral cysts are suggestive of torsion<sup>(3)</sup>, color Doppler evaluation is indispensable for the assessment of blood flow, and ruling out incarceration. Incarceration of the ovary has been reported in up to 43% of cases<sup>(4)</sup>. Ovarian torsion impairs the venous and lymphatic return, with impending gangrene and tissue necrosis. Symptoms such as severe irritability, abdominal pain, and vomiting, may be present<sup>(3)</sup>. These are associated with an increased risk of infertility if not diagnosed and managed promptly<sup>(2)</sup>. Consequently, early recognition can help guide emergent surgical management.

## Conclusion

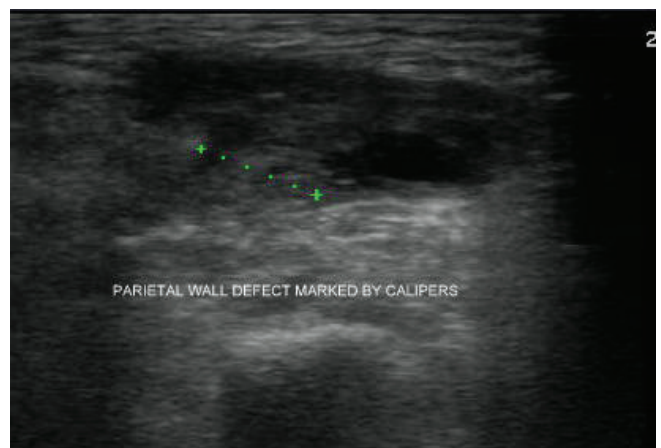
Ovarian herniation into the inguinal canal, though rare, should be considered as a diagnostic possibility. Ultrasonography is the ideal modality for the diagnosis of ovary-containing hernias, since it has the ability to evaluate and characterize the hernial contents and differentiate them from other diagnostic possibilities. In addition, color Doppler imaging helps assess vascular compromise, and guide proper and timely management.

## References

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**Fig. 1.** High-resolution ultrasound of the swelling revealed the ovary, marked by calipers, with follicles seen



**Fig. 2.** High-resolution ultrasonography showing an 8 mm defect in the anterior parietal wall containing a soft tissue structure – the ligament

## Conflict of interest

Authors do not report any financial or personal connections with other persons or organizations, which might negatively affect the contents of this publication and/or claim authorship rights to this publication.